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ENVIRONMENTAL MANAGEMENT PLAN

San Francisco Bay Region

- Legislative Mandates
- Program Goal and General Assumptions
- Existing Federal and State Standards
- Organizing the Plan
- Role of the Environmental Management Task Force
- Preliminary Program Budget

March 1976



Association of Bay Area Governments

in cooperation with Federal, State, Regional and Local agencies

I. LEGISLATIVE MANDATES

The mandate to prepare an Environmental Management Plan for the San Francisco Bay Region is derived from three sources: federal water and air quality legislation, federal and state policies developed under this legislation, and federal and state solid waste planning legislation.

WATER QUALITY

The 1972 Amendments to the Federal Water Pollution Control Act (P.L. 92-500) include the following goals:

The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this Act--

- 1) it is the national goal that the discharge of pollutants into the navigable water be eliminated by 1985;
- 2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;
- 3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;
- 4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;
- 5) it is the national policy that areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State; and

The key goal is that, wherever possible, swimmable and fishable waters be achieved by 1983. The provisions of section 208 of the act that pertain to water quality in the Bay Area are discussed below.

Section 208 of the act allows the Governor to designate agencies to prepare and implement areawide waste treatment management plans for a designated area. Within two years after the planning process is initiated, the designated agency--in this case, ABAG--is to prepare a plan that must be certified by the State Water Resources Control Board and subsequently approved by the Environmental Protection Agency. This plan is to include, but not be limited to control measures for improving water quality and the institutional and financial mechanisms necessary to implement control measures for the following sources of water pollution:

- municipal wastewater
- industrial wastewater
- storm runoff
- other nonpoint sources

The agency is also to assess the social, environmental and economic impacts of carrying out the plan. The Governor, in consultation with ABAG, will designate a management agency or agencies to implement the approved plan. No federal grants for water pollution control facilities will be made to

any agency not so designated, and no permit for this discharge of liquid wastes will be issued unless the discharge is consistent with the plan. The act requires permits for all discharges to navigable waters.

AIR QUALITY

The Clean Air Act of 1970 (P.L. 91-604) describes the air quality problem:

the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation.

The goal of the act is to protect public health from air pollution caused in part by the continued growth of population in metropolitan regions. Plans prepared under the act may include land use and transportation controls.

The act requires preparation of State Implementation Plans describing how air quality standards are to be achieved and maintained. A timetable and process for establishing these air quality standards, discussed later in this paper, are to be included.

The California Air Resources Board, assisted by the air pollution control districts in each air quality basin, has prepared the State Implementation Plan for California. For regions with difficult air pollution problems, such as the San Francisco Bay Area, additional plans were required. The Transportation Control Plan, which became a revision of the State Implementation Plan, identified short-term control measures for achieving air quality standards, including restrictions on the use of the automobile. Few of these transportation-related measures have been implemented. The Air Quality Maintenance Plan is to develop long-term control strategies for attaining and maintaining air quality standards. When adopted by the California Air Resources Board and approved by EPA, the Air Quality Maintenance Plan will constitute a revision of the State Implementation Plan and will guide air quality decisions in the Bay Area.

SOLID WASTE

Under the Federal Water Pollution Control Act Amendments of 1972, residual waste control and land disposal needs must be addressed in water quality management planning. In the regulations, residual wastes are defined as the "solid, liquid or sludge substances from man's activities in the urban, agricultural, mining and industrial environment remaining after collection and necessary treatment."

Waste management planning includes:

- An identification of the necessary controls to be established for the disposition of residual wastes that could affect water quality and a description of the proposed actions necessary to achieve such controls.

- An identification of the necessary controls to be established for the disposal of pollutants on land or in subsurface excavations to protect ground and surface water quality and a description of the proposed actions necessary to achieve such controls.

According to state policy, the primary responsibility for solid waste management rests with local government.

County-wide plans for the management of all wastes generated and disposed of within the county or exported have been completed by the nine Bay Area counties in keeping with the guidelines established by the State Solid Waste Management Board.

The Environmental Management Plan will address coordination among individual plans as well as solid waste management issues that county plans identify as requiring a regional approach, for example, evaluation of alternative, large-scale resource recovery systems, availability of Class I sites for disposing dangerous wastes, and management of wastewater treatment residuals. Related state and regional studies, such as the Bay Area Solid Waste Management Project, the Class I Site Study (State Solid Waste Management Board) and the Regional Municipal Wastewater Solids Management Study (EBMUD as lead agency), will be incorporated as applicable.



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II. PROGRAM GOAL AND GENERAL ASSUMPTIONS

The goal of the program is to produce an Environmental Management Plan that has the following two characteristics:

- It will lead to the greatest possible degree of improvement in water and air quality and in problems caused by solid waste, and will lead to compliance with federal and state standards and objectives at the earliest date possible.
- It will not have social, economic, or environmental effects so unacceptable as to prevent implementation.

Discussed below are general assumptions used in developing the work program.

THE PLAN SHOULD INTEGRATE THE MANAGEMENT OF AIR QUALITY, WATER QUALITY, AND SOLID WASTE.

This assumption implies that management plans for each of these three environmental areas should be consistent with the same projections of population, land use, and employment. It implies that the adverse effects that the management of one area has on the management of another area has been considered. It also implies that options for management in each area have been assessed with respect to the same social, economic, and environmental criteria, and that selections of the best options have been made based on these assessments.

THE PLAN SHOULD EMPHASIZE IMPLEMENTATION.

This assumption implies that potential implementing agencies should be involved in the development of the plans as far as the budget and the necessity for integration allow. For this reason, counties are being asked to prepare surface runoff management plans. The budgets for the other plans are not large enough to accommodate similar levels of involvement; for these plans, involvement of potential implementing agencies will be determined on a case-by-case basis.

This assumption also implies that the collection of new data will not be emphasized. The plan will be based in large part on the compilation and analysis of existing data.

FEDERAL AND STATE STANDARDS AND GOALS SHOULD BE THE STARTING POINT FOR PLAN DEVELOPMENT.

The implication of this assumption is that alternative plans should be formulated to meet standards and goals. Existing standards do not, however, provide a rigid constraint on plan development.

For example, air quality standards and a timetable for compliance have been established, but are being reconsidered at the federal level. Water quality standards have been established, but they do not cover all aspects of the problem (for example, there are no specific objectives pertaining to sur-

face runoff). In addition, water quality standards need not be applied rigidly if, under certain conditions, the social, economic, or environmental costs are demonstrated to be too high. There are legal provisions for modifying some standards after a thorough examination of their potential for attainment.

ALL WATER QUALITY, AIR QUALITY, AND SOLID WASTE PROBLEMS WILL NOT BE SOLVED BY THE ENVIRONMENTAL MANAGEMENT PLAN.

The EPA has emphasized developing a continuing planning process. This assumption implies that the Environmental Management Plan will spell out how the continuing planning process will function and what it will do. It also implies that the solution of certain problems can, with concurrence of the EMTF and certain state and federal agencies, be deferred for later consideration in the continuing planning process. Such deferment is now planned for the development of institutional-financial mechanisms for the management plans on Water Conservation, Reuse, and Supply and Solid Waste.

Another implication of this assumption is that the political and technical techniques developed during the preparation of the plan should be used in the continuing planning process.

THE ENVIRONMENTAL MANAGEMENT PLAN WILL BUILD ON EXISTING PLANS.

The implication of this assumption is that existing plans, especially those for municipal (201) facilities and the county solid waste plans, will be accepted as a basis for the development of the Environmental Management Plan. Some plans may be re-examined, but for the most part, they will be accepted as they now stand.

THE PUBLIC MUST NOT ONLY BE GIVEN THE OPPORTUNITY TO REACT TO THE PLAN, BUT MUST BE INVOLVED IN ITS FORMULATION.

The implication of this assumption is that citizen involvement must be continuous. It also implies that a comprehensive citizen participation program, operating at both the local and regional level and supported by a sufficient budget, is required.

THE SOCIAL, ECONOMIC, AND ENVIRONMENTAL COSTS OF THE ALTERNATIVES MUST BE ASSESSED BEFORE THE PLAN IS SELECTED.

The implication of this assumption is that considerable effort should be spent to develop, on a consistent basis, information needed for such assessments. For example, to develop a surface runoff management plan, each county must assess alternatives according to the same criteria and using similar procedures. Therefore, ABAG will formulate guidelines for making the assessments that will be used in developing each management plan.

EMPHASIS SHOULD BE PLACED ON THE MANAGEMENT OF SURFACE RUNOFF POLLUTION.

This assumption implies that a significant amount of the total effort should be spent to address this problem and that the budget should reflect this effort. The budget is sufficient to allow considerable substantive work by agencies in the counties to develop the management plan. This assumption also implies that much of the technical work by ABAG should support the surface runoff management plan.

THE EXISTING GOVERNMENTAL STRUCTURE WILL BE MEASURED FOR ITS ABILITY TO PLAN AND MANAGE THE ENVIRONMENT

This assumption implies that the existing structure will be analyzed to determine if there are adequate resources and an appropriate organization for planning and managing the environment. If the structure is found to be deficient, modifications will be developed as a necessary part of the Environmental Management Plan.

III. EXISTING FEDERAL AND STATE STANDARDS

The goals cited in the Federal Water Pollution Control Act and the Clean Air Act provide general guidance for developing plans to protect the environment. However, the standards promulgated under the two acts form a detailed basis for plan preparation. Under the Clean Air Act, national ambient air quality standards are a measure of the concentration of pollutants in the air. To reduce health problems, emission standards limit the amount of pollutants that can be generated. Water quality standards, called water quality objectives by the State Water Resources Control Board, are set through a complex process of determining beneficial uses for each body of water. Nevertheless, standards are directly related to the goal of swimmable and fishable waters.

WATER QUALITY STANDARDS

Water quality standards in California are set to protect the "beneficial uses" of water. These are:

- Municipal, industrial, and agricultural uses
- Fish and wildlife propagation
- Recreation
- Navigation

Each of these uses except navigation has subcategories, resulting in a total of 21 beneficial uses. Different bodies of water have different beneficial uses. There are over 100 different bodies of water in the San Francisco Bay Region, most of which are fresh water streams and reservoirs. The others are the various zones of the San Francisco Bay (for example, the South Bay, south of San Mateo Bridge), the ocean, and the groundwater basins.

Water quality standards fall into two categories, numerical and narrative. An example of a numerical standard is that for dissolved oxygen: For all tidal waters in the Bay downstream of Carquinez Bridge, the minimum dissolved oxygen concentration is 5 milligrams per liter (mg/l). An example of a narrative standard is that for biostimulation (algae growth): "All waters shall be maintained such that the level of biotic growth does not cause nuisance or adverse effects on any protected beneficial water use as a result of man's activity. Whenever natural factors cause such biotic growths, then controllable factors shall not cause further increase."

A ten-page list of all standards for the region is set forth in the report of the State Water Resources Control Board entitled, "Water Quality Control Plan, San Francisco Bay Basin." Two other types of requirements, closely associated with standards have also been adopted: discharge prohibitions and a nondegradation policy. Discharge prohibitions are what the phrase implies. For instance, there is a prohibition on the discharge of certain kinds of wastewater at any point where the wastewater will not receive a minimum initial dilution of at least ten to one. The nondegradation policy states that, regardless of the standards, the quality of waters shall not be lowered below existing quality, unless such a change is consistent with maximum benefit to the people of the state and will not unreasonably affect beneficial uses.

At present the water quality standards, the discharge prohibitions, and the nondegradation policy do not directly address surface runoff. The allowable frequency of water pollution in San Francisco Bay cause by storm runoff has not been determined. However, the State Water Resources Control Board and EPA recommend that, prior to setting standards, consideration should be given to controlling storm runoff.

AIR QUALITY STANDARDS

The Clean Air Act contains a more direct approach for establishing air quality standards for the protection of public health and welfare. In early 1971, ambient air quality standards were set for six pollutants: suspended particulate matter, sulfur dioxide (SO_2), carbon monoxide (CO), hydrocarbons (HC), nitrogen dioxide (NO_2), and photochemical oxidants (O_x). The standards are divided into primary and secondary: primary air quality standards are designed to protect public health; secondary standards are to protect public welfare, such as aesthetics or property damage. These air quality standards were based on previously published federal air quality criteria documents that summarize medical research findings on the effects of pollutants levels and exposures. As the standards were formulated, margins of safety were developed to insure protection of public health. To take into account variable meteorological conditions, the standards were not to be violated more than one time each year. Because of the different effects of the pollutants, time intervals were set for each pollutant level considered. Thus, a typical standard would be: "0.08 parts per million (ppm) for 1-hour average, not to be exceeded more than once per year."

A nondegradation policy similar to the one noted above has been proposed by EPA, but is not a promulgated regulation as present. The 1970 Clean Air Act requires the primary air quality standards to be achieved by 1977. Revisions to the act under consideration by the U. S. Congress would allow for a more flexible schedule for compliance with air quality standards.

Because the California standards set by the Air Resources Board are management objectives (as opposed to standards to be achieved and maintained) the federal standards will be of major concern in the Air Quality Maintenance Plan. It should be noted that the federal and state standards are quite similar.

SOLID WASTE

The solid waste planning mandate is less direct than the mandate for air and water quality planning. According the state policy, the primary responsibility for solid waste management rests with local governments. State policy outlines the minimum standards for solid waste handling and disposal and requires the preparation of county-wide solid waste management plans. These county-wide plans must contain the necessary intergovernmental and public/private arrangements for administration, financing, enforcement, operations and continuing planning. The county-wide plans do not examine regional solid waste issues, which will, therefore, be included in the Environmental Management Plan.

levels of treatment are necessary for the second phase of construction. Consideration will also be given to moving discharge points to areas of greater dilution, that is, closer to the Golden Gate Bridge.

Plans for the next phase of municipal wastewater facilities will not be examined where most of the planning has been completed. The second phase will be examined and recommendations will be made.

INDUSTRIAL DISCHARGES

The Federal act also requires an industrial discharges plan. In the North Bay, pollution from such discharges has caused pollution problems. Where industries discharge into municipal sewer systems, problems of toxic wastes and overloading of municipal treatment plants often occur.

For industries that discharge sewage directly to the region's waters, the limits on discharges will be checked to determine whether water quality is being protected. Potential locations for new industrial development will be identified, and new limits for each location will be specified. For industries that discharge sewage to municipal sewerage systems, current limits ("pretreatment" requirements) will be analyzed according to classes of industries and location (canneries in the South Bay, for example). The effect of limits on municipal sewerage works will be determined, and changes will be recommended where appropriate. Efforts to limit industrial discharges of sewage will undoubtedly cause an increase in hazardous solid wastes because the sewage treatment works installed by industries convert water-borne pollutants to solid waste. The effect of this conversion will be considered in the planning process.

OTHER NONPOINT SOURCES

The federal act mandates the development of a process to deal with some nonpoint sources, specifically those from agriculture, forestry, and mine-related and construction activities. In some areas of the Bay, these and other nonpoint sources such as vessel wastes or septic tanks cause water quality problems. Early in the planning process, each nonpoint source will be examined, and for those sources deemed important, a management plan as well as a process will be developed.

Recommendations could include:

- vessel holding tanks and on-shore facilities to empty and dispose of wastes
- limits on septic tank construction in unsuitable areas
- regulations requiring municipal sewerage facilities to be capable of treating trucked-in waste from recreational areas.

WATER CONSERVATION, REUSE AND SUPPLY

Water conservation reduces the quantity of sewage to be treated and can, therefore, be an important factor in solving water quality problems. Reuse of reclaimed wastewater is a logical consideration because the higher levels of treatment required for pollution control result in wastewater that is reusable directly or with little additional treatment. Both conservation and reuse result in reduced water needs, which could create

conditions where water supply alternatives should be considered. This management plan, then, is an extension of water pollution considerations.

Various water conservation programs will be considered, both to save water and to reduce sewage flows. Possibilities include:

- requirements for low-water-use household facilities
- water pricing and water metering in unmetered areas
- restrictions on types of home use (for example, lawn watering, car washing)
- requirements for industrial, in-plant recycling.

Wastewater reclamation and reuse will be considered as a logical extension of improving municipal treatment works. Special attention will be given to industrial cooling and agricultural irrigation as markets for reused water. Recommendations could include:

- requirements for reuse for new "wet" industries
- programs for reuse for existing industries
- programs leading to agricultural reuse, both in and out of this region.

AIR QUALITY MAINTENANCE

Federal regulations pursuant to the Clean Air Act require the preparation of an Air Quality Maintenance Plan for the Bay Area. State and federal air quality standards are being violated in the region, and this management plan will determine how and when the standards are to be met.

In preparing the plan, the following courses of action would be considered for measures to improve air quality:

- New car controls. The Federal Motor Vehicle Control Program established emission limits and time schedules for emissions from new vehicles. To date, EPA has focused primarily on light-duty automobiles; however, it has the authority to regulate heavy-duty gasoline trucks, heavy-duty diesel trucks and motorcycles.
- Aircraft controls. EPA has the authority to regulate aircraft emissions. The regulations have focused mainly on particulate emissions and, to a lesser extent, on gaseous pollutants.
- In-use vehicle controls. These controls are directed at reducing emissions from vehicles in use, primarily through application of retrofit devices and periodic vehicle inspection. States are responsible for implementing, monitoring, and enforcing these programs.
- Existing stationary source controls. These control programs are the primary responsibility of local agencies (e.g., the Bay Area Air Pollution Control District). Overall guidance is provided by the states, with principal enforcement carried out by the local agency as delineated in the locally adopted "Rules and Regulations".
- Transportation controls. A number of programs are involved but there has been no clear identification of responsible implementing or en-

forcement authority. In general, the measures proposed would reduce private vehicle use (both VMT and trips) or reduce pollution from existing travel (e.g., eliminating congestions).

- Land use controls. A number of programs could be involved, but there has been no clear identification of responsible implementing or enforcement authority. Specific programs related to transportation controls are in EPA's recent Indirect Source Review and Parking Management Plan (both of which have been suspended indefinitely).

Because of the number of agencies authorized to implement air pollution controls, staff assigned to the preparation of the Air Quality Maintenance Plan will work closely with federal, state, regional and local agencies. In certain cases, formal arrangement will be made for joint staff participation on selected work program activities.

SOLID WASTE

The Federal Water Pollution Control Act mandates the identification of control and disposal needs for solid waste as part of the Environmental Management Plan.

According to state policy, the primary responsibility for solid waste management rests with local governments. Accordingly, management plans have been developed by the nine Bay Area counties. These plans have identified issues that need to be addressed at the regional level: the evaluation of alternative, large-scale resource recovery systems; availability of Class I sites for disposal of dangerous wastes in the region; and the management of wastewater treatment residuals. Some of these issues are being examined in the Bay Area Solid Waste Management Project and the Class I Site Study (State Solid Waste Management Board) and the Regional Municipal Wastewater Solids Management Study (EBMUD as lead agency).

During the two-year planning period, needs not covered in the other studies will be identified. The focus of the planning effort will be on these issues and on coordination among the county solid waste management plans.

Programs to promote source reduction and recycling of wastes will be recommended. Control measures for insuring that existing landfill sites meet state standards will be developed. Potential Class I disposal sites will be identified, and a method for establishing suitability will be developed.

Larger issues, such as multi-jurisdictional financing of resource recovery facilities or the acquisition of Class I sites will be considered in the continuing planning process.

V. ROLE OF ENVIRONMENTAL MANAGEMENT TASK FORCE

Public decisions cannot be made solely on technical grounds. Technical measures to solve air quality, water quality, and solid waste problems require direct expenditures by public and private organizations and can also have indirect effects on the economy, environment, and social characteristics of the region. A balance must be achieved between the technical measures and the effects of carrying out these measures. Attaining such a balance and insuring agreement on plan implementation requires extensive public involvement and contact with a variety of citizen organizations and interests.

The Environmental Management Task Force (EMTF), established by the ABAG Executive Board, has been given the responsibility of considering citizen interests, local policies, technical controls, and public costs. The members of the EMTF are elected officials from counties, cities, and wastewater districts, as well as representatives of interest groups, including business, labor and conservation.

The role of the EMTF will, in general, be to make decisions concerning the implementation of the plan and to determine the structure and functions of the continuing planning process. The ABAG staff will be responsible for developing alternatives and for assessing the alternatives with respect to their social, economic, and environmental effects. The role of the EMTF will be to judge this information and to select the best courses of action.

Among the key policy decisions the EMTF is expected to consider are:

- Determining how the Bay Area can best meet the federal requirement that air quality standards must be achieved "as expeditiously as possible."
- Determining how the Bay Area can meet the federal requirement that the goal of fishable - swimmable waters be achieved "wherever attainable" by 1983.
- Determining which agencies are responsible for implementing air, water, and solid waste controls, including any modifications to existing statutory authority or to existing governmental capability to plan and manage the environment.
- Determining the appropriate costs of meeting water quality standards, including the distribution of costs among measures to control various sources of pollution. Now much of the burden for improving water quality is placed on point sources. The question of whether some of the cost be shifted to surface runoff or other sources will be addressed.
- In air quality management, determining the degree of emphasis on stationary and mobile source controls, based on information regarding costs, effectiveness, and other public objectives.
- Determining how best to satisfy equity concerns when applying air pollution controls, especially among population groups, such as the poor, the elderly, and the young. In addition, there are legal and

equity concerns to be satisfied in the transport of pollution from one area of the region to another. These determinations would involve the future uses of land (growth) and transportation development.

- Determining the extent to which state and federal grants for water pollution control should be conditioned on the implementation of air quality mitigation measures by local agencies.
- Determining the degree of involvement of environmental management planning in other on-going planning, including current municipal wastewater facilities (201) planning.

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THE PUBLIC MUST NOT ONLY BE GIVEN THE OPPORTUNITY TO REACT TO THE PLAN, BUT MUST BE INVOLVED IN ITS FORMULATION.

The implication of this assumption is that citizen involvement must be continuous. It also implies that a comprehensive citizen participation program, operating at both the local and regional level and supported by a sufficient budget, is required.

THE SOCIAL, ECONOMIC, AND ENVIRONMENTAL COSTS OF THE ALTERNATIVES MUST BE ASSESSED BEFORE THE PLAN IS SELECTED.

The implication of this assumption is that considerable effort should be spent to develop, on a consistent basis, information needed for such assessments. For example, to develop a surface runoff management plan, each county must assess alternatives according to the same criteria and using similar procedures. Therefore, ABAG will formulate guidelines for making the assessments that will be used in developing each management plan.

EMPHASIS SHOULD BE PLACED ON THE MANAGEMENT OF SURFACE RUNOFF POLLUTION.

This assumption implies that a significant amount of the total effort should be spent to address this problem and that the budget should reflect this effort. The budget is sufficient to allow considerable substantive work by agencies in the counties to develop the management plan. This assumption also implies that much of the technical work by ABAG should support the surface runoff management plan.

THE EXISTING GOVERNMENTAL STRUCTURE WILL BE MEASURED FOR ITS ABILITY TO
PLAN AND MANAGE THE ENVIRONMENT

This assumption implies that the existing structure will be analyzed to determine if there are adequate resources and an appropriate organization for planning and managing the environment. If the structure is found to be deficient, modifications will be developed as a necessary part of the Environmental Management Plan.

III. EXISTING FEDERAL AND STATE STANDARDS

The goals cited in the Federal Water Pollution Control Act and the Clean Air Act provide general guidance for developing plans to protect the environment. However, the standards promulgated under the two acts form a detailed basis for plan preparation. Under the Clean Air Act, national ambient air quality standards are a measure of the concentration of pollutants in the air. To reduce health problems, emission standards limit the amount of pollutants that can be generated. Water quality standards, called water quality objectives by the State Water Resources Control Board, are set through a complex process of determining beneficial uses for each body of water. Nevertheless, standards are directly related to the goal of swimmable and fishable waters.

WATER QUALITY STANDARDS

Water quality standards in California are set to protect the "beneficial uses" of water. These are:

- Municipal, industrial, and agricultural uses
- Fish and wildlife propagation
- Recreation
- Navigation

Each of these uses except navigation has subcategories, resulting in a total of 21 beneficial uses. Different bodies of water have different beneficial uses. There are over 100 different bodies of water in the San Francisco Bay Region, most of which are fresh water streams and reservoirs. The others are the various zones of the San Francisco Bay (for example, the South Bay, south of San Mateo Bridge), the ocean, and the groundwater basins.

Water quality standards fall into two categories, numerical and narrative. An example of a numerical standard is that for dissolved oxygen: For all tidal waters in the Bay downstream of Carquinez Bridge, the minimum dissolved oxygen concentration is 5 milligrams per liter (mg/l). An example of a narrative standard is that for biostimulation (algae growth): "All waters shall be maintained such that the level of biotic growth does not cause nuisance or adverse effects on any protected beneficial water use as a result of man's activity. Whenever natural factors cause such biotic growths, then controllable factors shall not cause further increase."

A ten-page list of all standards for the region is set forth in the report of the State Water Resources Control Board entitled, "Water Quality Control Plan, San Francisco Bay Basin." Two other types of requirements, closely associated with standards have also been adopted: discharge prohibitions and a nondegradation policy. Discharge prohibitions are what the phrase implies. For instance, there is a prohibition on the discharge of certain kinds of wastewater at any point where the wastewater will not receive a minimum initial dilution of at least ten to one. The nondegradation policy states that, regardless of the standards, the quality of waters shall not be lowered below existing quality, unless such a change is consistent with maximum benefit to the people of the state and will not unreasonably affect beneficial uses.

At present the water quality standards, the discharge prohibitions, and the nondegradation policy do not directly address surface runoff. The allowable frequency of water pollution in San Francisco Bay caused by storm runoff has not been determined. However, the State Water Resources Control Board and EPA recommend that, prior to setting standards, consideration should be given to controlling storm runoff.

AIR QUALITY STANDARDS

The Clean Air Act contains a more direct approach for establishing air quality standards for the protection of public health and welfare. In early 1971, ambient air quality standards were set for six pollutants: suspended particulate matter, sulfur dioxide (SO_2), carbon monoxide (CO), hydrocarbons (HC), nitrogen dioxide (NO_2), and photochemical oxidants (Ox). The standards are divided into primary and secondary: primary air quality standards are designed to protect public health; secondary standards are to protect public welfare, such as aesthetics or property damage. These air quality standards were based on previously published federal air quality criteria documents that summarize medical research findings on the effects of pollutants levels and exposures. As the standards were formulated, margins of safety were developed to insure protection of public health. To take into account variable meteorological conditions, the standards were not to be violated more than one time each year. Because of the different effects of the pollutants, time intervals were set for each pollutant level considered. Thus, a typical standard would be: "0.08 parts per million (ppm) for 1-hour average, not to be exceeded more than once per year."

A nondegradation policy similar to the one noted above has been proposed by EPA, but is not a promulgated regulation as present. The 1970 Clean Air Act requires the primary air quality standards to be achieved by 1977. Revisions to the act under consideration by the U. S. Congress would allow for a more flexible schedule for compliance with air quality standards.

Because the California standards set by the Air Resources Board are management objectives (as opposed to standards to be achieved and maintained) the federal standards will be of major concern in the Air Quality Maintenance Plan. It should be noted that the federal and state standards are quite similar.

SOLID WASTE

The solid waste planning mandate is less direct than the mandate for air and water quality planning. According the state policy, the primary responsibility for solid waste management rests with local governments. State policy outlines the minimum standards for solid waste handling and disposal and requires the preparation of county-wide solid waste management plans. These county-wide plans must contain the necessary intergovernmental and public/private arrangements for administration, financing, enforcement, operations and continuing planning. The county-wide plans do not examine regional solid waste issues, which will, therefore, be included in the Environmental Management Plan.

IV. ORGANIZING THE PLAN

The Environmental Management Plan will consist of seven management plans:

- Surface Runoff
- Municipal Wastewater Facilities
- Industrial Discharges
- Nonpoint Sources Other than Surface Runoff
- Water Conservation, Reuse, and Supply
- Air Quality Maintenance
- Solid Waste

These will be integrated and related to air and solid waste policies, as noted earlier. The brief summaries of these plans that follow include:

- reasons for preparing the plan
- important considerations in preparing the plan
- possible plan actions

SURFACE RUNOFF

Section 208 of the Federal Water Pollution Control Act mandates a plan for surface runoff, which is considered a major source of pollution of the Bay (surface runoff contaminates, for example, the shellfish beds in the Bay off the San Mateo County shore).

In preparing this plan, "housekeeping" practices, street sweeping, refuse clean-up, and catch-basin cleaning, that will prevent some of the pollutants from being washed into the Bay by storm runoff will be considered. These or similar practices will probably be recommended throughout the region. The construction of facilities to collect, store, and treat storm runoff before it flows into the Bay will also be considered.

Priority for these facilities, which could cost millions of dollars, might be given to Santa Clara, southern Alameda, and San Mateo Counties because of the low dilution of runoff in the southern extremity of the Bay. Possible changes in the way land is used will be considered. For example, construction on the steeper slopes could be limited, or, in order to reduce peak runoff, new home developments might be required to provide storage for storm runoff. A more severe measure would be prohibiting the development of some land so that the runoff problem would not be aggravated.

MUNICIPAL WASTEWATER FACILITIES

This plan is also mandated by the federal act, which requires the preparation of a twenty-year project list for municipal wastewater facilities. Municipal wastewater discharges have been the most important source of pollution in much of the Bay, although considerable progress is being made in controlling this source.

In this plan, the capacities of yet-to-be-planned municipal wastewater facilities will be made consistent with limits on land use and development where there is assurance that such limits can be enforced. Further consolidation of municipal treatment works will be considered if additional

Levels of treatment are necessary for the second phase of construction. Consideration will also be given to moving discharge points to areas of greater dilution, that is, closer to the Golden Gate Bridge.

Plans for the next phase of municipal wastewater facilities will not be examined where most of the planning has been completed. The second phase will be examined and recommendations will be made.

INDUSTRIAL DISCHARGES

The Federal act also requires an industrial discharges plan. In the North Bay, pollution from such discharges has caused pollution problems. Where industries discharge into municipal sewer systems, problems of toxic wastes and overloading of municipal treatment plants often occur.

For industries that discharge sewage directly to the region's waters, the limits on discharges will be checked to determine whether water quality is being protected. Potential locations for new industrial development will be identified, and new limits for each location will be specified. For industries that discharge sewage to municipal sewerage systems, current limits ("pretreatment" requirements) will be analyzed according to classes of industries and location (canneries in the South Bay, for example). The effect of limits on municipal sewerage works will be determined, and changes will be recommended where appropriate. Efforts to limit industrial discharges of sewage will undoubtedly cause an increase in hazardous solid wastes because the sewage treatment works installed by industries convert water-borne pollutants to solid waste. The effect of this conversion will be considered in the planning process.

OTHER NONPOINT SOURCES

The federal act mandates the development of a process to deal with some nonpoint sources, specifically those from agriculture, forestry, and mine-related and construction activities. In some areas of the Bay, these and other nonpoint sources such as vessel wastes or septic tanks cause water quality problems. Early in the planning process, each nonpoint source will be examined, and for those sources deemed important, a management plan as well as a process will be developed.

Recommendations could include:

- vessel holding tanks and on-shore facilities to empty and dispose of wastes
- limits on septic tank construction in unsuitable areas
- regulations requiring municipal sewerage facilities to be capable of treating trucked-in waste from recreational areas.

WATER CONSERVATION, REUSE AND SUPPLY

Water conservation reduces the quantity of sewage to be treated and can, therefore, be an important factor in solving water quality problems. Reuse of reclaimed wastewater is a logical consideration because the higher levels of treatment required for pollution control result in wastewater that is reusable directly or with little additional treatment. Both conservation and reuse result in reduced water needs, which could create

conditions where water supply alternatives should be considered. This management plan, then, is an extension of water pollution considerations.

Various water conservation programs will be considered, both to save water and to reduce sewage flows. Possibilities include:

- requirements for low-water-use household facilities
- water pricing and water metering in unmetered areas
- restrictions on types of home use (for example, lawn watering, car washing)
- requirements for industrial, in-plant recycling.

Wastewater reclamation and reuse will be considered as a logical extension of improving municipal treatment works. Special attention will be given to industrial cooling and agricultural irrigation as markets for reused water. Recommendations could include:

- requirements for reuse for new "wet" industries
- programs for reuse for existing industries
- programs leading to agricultural reuse, both in and out of this region.

AIR QUALITY MAINTENANCE

Federal regulations pursuant to the Clean Air Act require the preparation of an Air Quality Maintenance Plan for the Bay Area. State and federal air quality standards are being violated in the region, and this management plan will determine how and when the standards are to be met.

In preparing the plan, the following courses of action would be considered for measures to improve air quality:

- New car controls. The Federal Motor Vehicle Control Program established emission limits and time schedules for emissions from new vehicles. To date, EPA has focused primarily on light-duty automobiles; however, it has the authority to regulate heavy-duty gasoline trucks, heavy-duty diesel trucks and motorcycles.
- Aircraft controls. EPA has the authority to regulate aircraft emissions. The regulations have focused mainly on particulate emissions and, to a lesser extent, on gaseous pollutants.
- In-use vehicle controls. These controls are directed at reducing emissions from vehicles in use, primarily through application of retrofit devices and periodic vehicle inspection. States are responsible for implementing, monitoring, and enforcing these programs.
- Existing stationary source controls. These control programs are the primary responsibility of local agencies (e.g., the Bay Area Air Pollution Control District). Overall guidance is provided by the states, with principal enforcement carried out by the local agency as delineated in the locally adopted "Rules and Regulations".
- Transportation controls. A number of programs are involved but there has been no clear identification of responsible implementing or en-

forcement authority. In general, the measures proposed would reduce private vehicle use (both VMT and trips) or reduce pollution from existing travel (e.g., eliminating congestions).

- Land use controls. A number of programs could be involved, but there has been no clear identification of responsible implementing or enforcement authority. Specific programs related to transportation controls are in EPA's recent Indirect Source Review and Parking Management Plan (both of which have been suspended indefinitely).

Because of the number of agencies authorized to implement air pollution controls, staff assigned to the preparation of the Air Quality Maintenance Plan will work closely with federal, state, regional and local agencies. In certain cases, formal arrangement will be made for joint staff participation on selected work program activities.

SOLID WASTE

The Federal Water Pollution Control Act mandates the identification of control and disposal needs for solid waste as part of the Environmental Management Plan.

According to state policy, the primary responsibility for solid waste management rests with local governments. Accordingly, management plans have been developed by the nine Bay Area counties. These plans have identified issues that need to be addressed at the regional level: the evaluation of alternative, large-scale resource recovery systems; availability of Class I sites for disposal of dangerous wastes in the region; and the management of wastewater treatment residuals. Some of these issues are being examined in the Bay Area Solid Waste Management Project and the Class I Site Study (State Solid Waste Management Board) and the Regional Municipal Wastewater Solids Management Study (EBMUD as lead agency).

During the two-year planning period, needs not covered in the other studies will be identified. The focus of the planning effort will be on these issues and on coordination among the county solid waste management plans.

Programs to promote source reduction and recycling of wastes will be recommended. Control measures for insuring that existing landfill sites meet state standards will be developed. Potential Class I disposal sites will be identified, and a method for establishing suitability will be developed.

Larger issues, such as multi-jurisdictional financing of resource recovery facilities or the acquisition of Class I sites will be considered in the continuing planning process.

V. ROLE OF ENVIRONMENTAL MANAGEMENT TASK FORCE

Public decisions cannot be made solely on technical grounds. Technical measures to solve air quality, water quality, and solid waste problems require direct expenditures by public and private organizations and can also have indirect effects on the economy, environment, and social characteristics of the region. A balance must be achieved between the technical measures and the effects of carrying out these measures. Attaining such a balance and insuring agreement on plan implementation requires extensive public involvement and contact with a variety of citizen organizations and interests.

The Environmental Management Task Force (EMTF), established by the ABAG Executive Board, has been given the responsibility of considering citizen interests, local policies, technical controls, and public costs. The members of the EMTF are elected officials from counties, cities, and wastewater districts, as well as representatives of interest groups, including business, labor and conservation.

The role of the EMTF will, in general, be to make decisions concerning the implementation of the plan and to determine the structure and functions of the continuing planning process. The ABAG staff will be responsible for developing alternatives and for assessing the alternatives with respect to their social, economic, and environmental effects. The role of the EMTF will be to judge this information and to select the best courses of action.

Among the key policy decisions the EMTF is expected to consider are:

- Determining how the Bay Area can best meet the federal requirement that air quality standards must be achieved "as expeditiously as possible."
- Determining how the Bay Area can meet the federal requirement that the goal of fishable - swimmable waters be achieved "wherever attainable" by 1983.
- Determining which agencies are responsible for implementing air, water, and solid waste controls, including any modifications to existing statutory authority or to existing governmental capability to plan and manage the environment.
- Determining the appropriate costs of meeting water quality standards, including the distribution of costs among measures to control various sources of pollution. Now much of the burden for improving water quality is placed on point sources. The question of whether some of the cost be shifted to surface runoff or other sources will be addressed.
- In air quality management, determining the degree of emphasis on stationary and mobile source controls, based on information regarding costs, effectiveness, and other public objectives.
- Determining how best to satisfy equity concerns when applying air pollution controls, especially among population groups, such as the poor, the elderly, and the young. In addition, there are legal and

equity concerns to be satisfied in the transport of pollution from one area of the region to another. These determinations would involve the future uses of land (growth) and transportation development.

- Determining the extent to which state and federal grants for water pollution control should be conditioned on the implementation of air quality mitigation measures by local agencies.
- Determining the degree of involvement of environmental management planning in other on-going planning, including current municipal wastewater facilities (201) planning.

VI. PRELIMINARY PROGRAM BUDGET

The budget on the following page presents a tentative allocation of resources by program category for EMTF review. The difference between the budgeted total of \$4,085,000 and the grant amount of \$4,302,890 reflects expenditures on start-up costs and preparation of the work program.

The second column shows the part of the total 208 grant allotted to the Air Quality Maintenance Plan. It does not include money or staff support from other sources. Some significant additional support is now assured for the Air Quality Maintenance Plan.

To preserve some flexibility, allow for unanticipated events, and provide for "midcourse corrections", ten percent of the total grant has been set aside in a contingency fund. Depending upon the outcome of uncertain events (such as federal and state legislation), this contingency fund will probably be allocated to citizen participation, solid waste planning, and the regional integration of management plans.

Significant differences in allocation can be noted between this budget and the previous version presented in the Draft Environmental Management Plan Work Program. The changes have been made in response to comments by EMTF members, local agencies, and a staff reevaluation of the work program. Especially significant are the following changes:

- Special studies were substantially reduced in response to several comments. Studies were reorganized and the scopes of several studies were reduced to fit a smaller budget. The subject areas of the special studies remain the same.
- Solid waste planning was scaled back and the budget appropriately reduced because of an uncertainty of new federal legislation, state appropriations, and on-going regional and local studies. Contingency funds would be made available as needs are clarified.
- Surface runoff was substantially increased to provide additional resources for local participating agencies.

The ABAG staff is presently refining the budget. The final work program and budget submitted to the Environmental Protection Agency will include the following additional information:

- identification of financial support to local lead agencies
- identification of grant funds budgeted for state and regional agencies and for consultant assistance.



$$\begin{array}{r} 1 \\ \times 65 \\ \hline 318 \\ + 65 \\ \hline 325 \\ - 130 \\ \hline 195 \\ + 130 \\ \hline 2470 \end{array}$$

$$\begin{array}{r} 1 \\ \times 65 \\ \hline 315 \\ + 213 \\ \hline 325 \\ - 130 \\ \hline 195 \\ + 130 \\ \hline 1625 \end{array}$$

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